

Claim Listing

Claims 1-11 (cancelled).

12 (new): A soft serve food product manufacturing, storage, and dispensing machine, comprising:

a source of soft serve food product;

a closed loop circulation system adapted to receive soft serve food product from the source, the closed loop circulation system comprising an emulsification assembly adapted to emulsify soft serve food product in the closed loop circulation system; and

a dispensing head connected to the closed loop circulation system adapted to dispense soft serve food product from the closed loop circulation system.

13 (new): The machine of claim 12, in which the emulsification assembly comprises at least one chamber containing a plurality of motor driven emulsification elements.

14 (new): The machine of claim 12, in which the circulation system further comprises:

a pump in series with the emulsification assembly.

15 (new): The machine of claim 12, further comprising:

a refrigerated compartment enclosing the closed loop circulation system.

16 (new): The machine of claim 12, further comprising:

a refrigerated compartment enclosing the source of soft serve food product, the closed loop circulation system, and the dispensing head.

17 (new): The machine of claim 15, further comprising:

a refrigeration unit adapted to cool the refrigerated compartment to a predetermined temperature.

18 (new): The machine of claim 17, in which the predetermined temperature is just below the freezing temperature of the soft serve food product.

19 (new): The machine of claim 17, in which the predetermined temperature is between approximately 0° F. and approximately 26° F.

20 (new): The apparatus of claim 12, further comprising:
a clean in place system connected to the closed loop circulation system and adapted to clean the closed loop circulation system.

21 (new): A soft serve food product manufacturing, storage, and dispensing machine, comprising:
a source of soft serve food product;
a closed loop circulation system adapted to receive soft serve food product from the source;
a dispensing head connected to the closed loop circulation system adapted to dispense soft serve food product from the closed loop circulation system; and
a refrigerated compartment enclosing the closed loop circulation system.

22 (new): The machine of claim 21, in which the refrigerated compartment encloses the source of soft serve food product, the closed loop circulation system, and the dispensing head.

23 (new): The machine of claim 21, further comprising;
a refrigeration unit adapted to cool the refrigerated compartment to a predetermined temperature.

24 (new): The machine of claim 23, in which the predetermined temperature is just below the freezing temperature of the soft serve food product.

25 (new): The machine of claim 23, in which the predetermined temperature is between approximately 0° F. and approximately 26° F.

26 (new): The machine of claim 12, further comprising
at least one mix head adapted to introduce soft serve food product from the source into the emulsification assembly.

27 (new): The machine of claim 26, in which the at least one mix head is further adapted to introduce flavor and overrun gas into the emulsification assembly.

28 (new): The machine of claim 26, in which the at least one mix head is further adapted to introduce cleaning fluid into the emulsification assembly.

29 (new): The machine of claim 12, in which the emulsification assembly comprises a plurality of emulsification chambers connected in series.

30 (new): The machine of claim 29, in which the emulsification chambers define a serpentine path in the closed loop circulation system.

31 (new): The machine of claim 29, in which each emulsification chamber has a first end and a second end, an inlet connected to the first end, and an outlet connected to the second end; and

in which each emulsification chamber contains a rotatable whipping assembly extending from the first end to the second end of the emulsification chamber, the whipping assembly comprising first and second end pieces supporting a plurality of longitudinally extending rods connected between the end pieces, each rod being radially displaced from the axis of rotation of the whipping assembly.

32 (new): The machine of claim 29, in which each emulsification chamber contains a rotatable whipping assembly comprising a plurality of longitudinally extending rotatable rods and a plurality of longitudinally extending stationary rods, each rod being

radially displaced from the axis of rotation of the whipping assembly, at least some of the rotatable rods being radially displaced from the axis of rotation by unequal amounts.

33 (new): The machine of claim 12, in which the closed loop circulation system further comprises:

a pump connected in series with the emulsification assembly; and

a dispensing valve assembly in the dispensing head connected in series with the emulsification assembly and the pump and adapted to deliver soft serve food product from the closed loop circulation system.

34 (new): The machine of claim 12, further comprising a freezing barrel in the closed loop circulation system.

35 (new): The machine of claim 20, further comprising a refrigerated compartment enclosing the closed loop circulation system and an unrefrigerated compartment enclosing the clean in place system.

36 (new): The machine of claim 13, in which the emulsification chamber contains a rotatable emulsification assembly comprising a plurality of rotatable axially extending emulsification elements that are radially displaced from the axis of rotation of the emulsification assembly.

37 (new): The machine of claim 36, in which the emulsification chamber further contains a plurality of stationary axially extending emulsification elements adapted to cooperate with the rotatable emulsification elements to provide a shearing action in the emulsification chamber.